

1 August 15, 2011

2 **Eric Gakstatter**

3 Editor – GPS World magazine Survey Scene enewsletter

4 Editor – Geospatial Solutions

5 High-precision GPS Consultant

6 PO Box 663

7 West Linn, OR 97068

8
9 Marlene H. Dortch, Secretary

10 Federal Communications Commission

11 445 12th Street SW

12 Washington, DC 20554

13 Re: IB Docket No. 11-109

14 Dear Ms. Dortch,

15 In addition to [my comments posted on July 28, 2011](#), I'd like to reply to
16 [comments submitted by LightSquared in their letter dated August 11, 2011](#).

17 Again, by way of background, as a Contributing Editor to GPS World
18 magazine, my specialty is high-precision GPS receivers of which I've been
19 involved with for more than 20 years as a product developer, power user
20 and consultant. I'm in touch with tens of thousands of high-precision GPS
21 users from around the world through my newsletter articles (bi-weekly),
22 webinars and my attendance at technical conferences. I consider myself and
23 I'm considered by others to be an advocate for the high-precision GPS
24 community.

25 In Jeffrey Carlisle's (LightSquared Executive Vice President) comments to
26 the FCC dated August 11, 2011, he stated that "had the GPS industry
27 complied with the DoD's recommended filtering standards for GPS
28 receivers, there would be no issue with LightSquared's operations in the
29 lower portion of its downlink band."

30 This is a false statement, and to make matters worse, he knows it's a false
31 statement. Here's why...

32 LightSquared sells high-precision satellite data communications services to
33 the GPS industry. Before LightSquared was formed in 2010, its predecessors
34 (Skyterra, MSV) sold the same services to the GPS industry for many, many
35 years. In the course of business over many, many years, LightSquared and
36 its predecessors have encouraged GPS receiver manufacturers to design
37 receivers that look into the MSS band (1525-1559MHz) in order to access
38 LightSquared's satellite data communication services. This service has
39 generated tens of millions of dollars in revenue for LightSquared and its
40 predecessors over many years and continues to be a revenue source for
41 LightSquared today.

42 If LightSquared chooses to stop supplying satellite data communications
43 services to the GPS industry, that's their choice, but they should not
44 fabricate a statement claiming that only the reason for interference in the
45 "lower portion of its downlink band" is due to filtering technology. It's just
46 not true. Tens of thousands, if not hundreds of thousands, of expensive
47 high-precision GPS receivers were specifically designed to access
48 LightSquared's and Inmarsat's satellite data communications services that
49 they sell to the GPS industry.

50 LightSquared may state they will continue to offer these services to the GPS
51 industry in the upper portion of its downlink band (1545-1559MHz) to
52 create separation from the lower portion of the downlink band (1526-
53 1536MHz). It's too late for that. Billions of dollars of expensive, high-
54 precision GPS receivers are already in the market that were designed to
55 look in the entire MSS L-band (1525-1559MHz) for services provided by
56 LightSquared and Inmarsat. Had the GPS user community been given
57 sufficient notice, tens of thousands of high-precision GPS equipment

owners could have planned for transitioning their GPS receivers over many years with a manageable financial impact. Unfortunately, that's not the case. The GPS user community was blindsided by LightSquared's application in November 2010 and the FCC's waiver granted to LightSquared in January 2011.

LightSquared and the FCC failed to adequately notify the GPS user community of their intentions. As I've submitted before, the precedent has already been set on how to effectively notify the GPS user community about an action that would render several hundred thousand high-precision GPS receivers obsolete. [In 2008, the U.S. Air Force proposed to discontinue supporting the semicodeless technique](#) that is used by virtually every civilian L1/L2 high-precision GPS receiver in existence. It was the first time in history that an action would render several hundred thousand high-precision GPS receivers obsolete, a scale which is very similar to the impact of the LightSquared system.

There was no industry coalition formed to engage the Air Force. There was no industry outcry. A public/private technical working group was not formed to test the effects on receivers if semicodeless was not supported. Why is that?

The answer is very simple. The U.S. Air Force, to its credit, did a fantastic job of communicating directly with the GPS user community along with the Department of Commerce. It issued public statements describing the impact the action would have on high-precision GPS receivers.

The U.S. Air Force did its homework. At the end of the day, it set a sunset date of December 31, 2020 to discontinue supporting the semicodeless technique. It correctly determined that 12 years is about the amount of time that would allow a smooth transition with a manageable financial impact to the high-precision GPS user community.

Imagine if the U.S. Air Force had set a period of one year to transition away from using the semicodeless technique. That action would have destroyed the high-precision GPS user community resulting in billions of dollars in losses and widespread small business closure. Fortunately, they did their homework, understood the impact, and made the correct decision.

LightSquared, on the other hand, either didn't do its homework or intentionally kept quiet in order to fly under the radar and push its initiative through before the GPS user community (and others) knew what was happening. In either case, the GPS user community shouldn't be held accountable in paying for the FCC's and LightSquared's lack of communication/notification.

LightSquared and the FCC incorrectly assumed that communicating/negotiating with the U.S. GPS Industry Council (USGIC) was the equivalent of communicating/negotiating with the GPS user community. That is a false assumption. The USGIC does not communicate directly with the GPS user community and never has. That's not their role. I've been personally involved in the high-precision GPS industry for 20+ years and writing a monthly newsletter on high-precision GPS technology for GPS World magazine for more than five years. I attend almost every major GPS conference and high-precision GPS market segment conference in the U.S. and some abroad. The first I'd heard about the LightSquared interference issue was November 2010.

Even if LightSquared only uses the lower portion of the downlink band (1526-1536MHz) as they've proposed, the number of high-precision receivers affected would be at least 200,000 at an estimated replacement cost of \$10,000 per unit which equates to a total equipment replacement cost of \$2 billion dollars. That does not include the cost of removal/installation, lost productivity, required software upgrades, and

training. Do LightSquared and the FCC expect the GPS user community to bear that cost? Hopefully, you can see by the overwhelming number of public comments from small businesses and local government agencies, such an action would be devastating to the U.S. economy.

Lastly, please do not forget about the potential devastating impact of LightSquared mobile devices (uplink band 1626.5-1660.5MHz) on GPS and GNSS receivers. I'm afraid this is being lost in all the discussion about the downlink band. The uplink band could have a worse affect on GPS and GNSS receivers than the downlink band.

LightSquared mobile devices are potentially portable GPS/GNSS jammers. The FCC needs to seriously investigate the interference impact of LightSquared mobile devices (1626.5-1660.5Mhz) on GPS receivers. It is already known that Inmarsat (1626.5-1660.5MHz) devices and Iridium (1616-1626.5MHz) devices interfere with each other, but Iridium devices are only used in remote areas so it's not a widespread problem. It is also known that these devices interfere with the GLONASS L1 signal (1597-1605MHz). We don't know the extent of the effect that LightSquared mobile devices will have on GLONASS L1, GPS L1, Galileo L1, or Compass L1 signals. The problem is that no LightSquared mobile devices are available to test. Yes, lab simulations can be performed, but LightSquared devices will be made in Asia, among other places, where the designers won't care one bit about GPS/GLONASS interference. There is not an acceptable design margin, if any, to allow for sloppy LightSquared device designs.

Thank you for your attention. If you feel that further testimony is needed, I'm more than happy to oblige.

Sincerely,

/S/ *Eric Gakstatter*

141 Eric Gakstatter
142 Principal – Discovery Management Group LLC
143 Editor – GPS World Magazine Survey Scene enewsletter
144 Editor – Geospatial Solutions
145 PO Box 663
146 West Linn, OR 97068